Claims

We claim:

1. A mapping table for referencing rows of a primary B+tree, the mapping table

2 comprising:

3   a row for each row of the primary B+tree.

2. The mapping table according to claim 1, wherein each row of the mapping table

comprises a primary key value from the primary B+tree.

3. The mapping table according to claim 1, wherein the mapping table provides

one-to-one mapping between primary keys of the primary B+tree structure and physical

row identifiers of the mapping table.

1   4. The mapping table according to claim 1, wherein each row of the mapping table

2 comprises a guess-DBA, database block address of a leaf block of the primary B+tree,

3 where the corresponding primary B+tree row is likely to be found.

1   5. A primary B+tree, comprising:

2 mapping table row identifiers stored in each row of the primary B+tree, the mapping table

3   row identifiers comprising a physical row identifier of a corresponding mapping table

4   row.

1   6. The primary B+tree according to claim 5, wherein the mapping table row

2   identifiers are stored at a fixed offset from a beginning of each row of the primary B+tree.

1   7. An auxiliary structure for a primary B+tree, the auxiliary structure comprising:

2   row identifiers of corresponding mapping table rows, the row identifiers referring to a

3   primary B+tree row.

1   8. A method for loading/populating a primary B+tree having an associated

2   mapping table, the method comprising:

        generating a row of the mapping table for each row of the primary B+tree; and

        storing in each row of the mapping table a row identifier for a corresponding row

5   of the primary B+tree, the row identifier comprising a primary key column value for each

6   row of the primary B+tree and a guess-DBA.

1   9. A method for maintaining a circular dependency between a mapping table row

2   and a primary B+tree row, the method comprising:

3   computing a length of a mapping table row based upon a length of a primary key

4   and an overhead of a guess-DBA;

5   utilizing the computed length to identify a mapping table block that can

6 accommodate the row;

7   reserving a slot in the identified mapping table block, wherein an address of the

8 block and a reserved slot form a mapping table physical row identifier;

9   inserting a primary B+tree row containing the physical row identifier into the

10 primary B+tree;

11   utilizing a leaf block address of the primary B+tree row to construct a row of the

12 mapping table; and

13   inserting the mapping table row in the reserved slot.

10. The method according to claim 9, further comprising:

carrying out a partition maintenance operation on the primary B+tree; and

rebuilding the mapping table after the partition maintenance.

11. The method according to claim 9, further comprising:

2 carrying out a partition maintenance operation on the primary B+tree; and

3 maintain the mapping table during the partition maintenance.

1 12. The method according to claim 9, further comprising:

2 carrying out a partition maintenance operation on the primary B+tree and

3 rebuilding the mapping table on-line.

1   13. A computer program product for performing a process for indexing a primary

2   B+tree, the computer program product comprising:

3   a computer readable medium; and

4   computer program instructions, recorded on the computer readable medium,

5   executable by a processor, for performing the steps of:

6   generating a row of a mapping table for each row of the primary B+tree; and

7   storing in each row of the mapping table a row identifier for a corresponding row

8   of the primary B+tree, the identifier comprising a primary key column value and a guess-

9   database address for each row of the primary B+tree.

1   14. A system for performing a process for indexing a primary B+tree, the system

2   comprising:

3   a processor operable to execute computer program instructions; and

4   a memory operable to store computer program instructions executable by the

5   processor, for performing the steps of:

6   generating a row of a mapping table for each row of the primary B+tree; and

7   storing in each row of the mapping table a row identifier for a corresponding row

8   of the primary B+tree, the identifier comprising a primary key column value and a guess-

9   database address for each row of the primary B+tree.